

5     What is claimed is:

1.     A valve comprising:

        a receiver through which fluid flows when the valve is open;

        a metering groove operable to form a metering passage and having a groove  
10             axis that extends the length of the metering groove and cross-sectional  
              areas oriented perpendicular to the groove axis that differ according to  
              their location along the axis, wherein the metering passage is operable to  
              limit the flow of fluid through the receiver; and

        a stem positionable relative to the receiver to form the metering passage from  
15             different portions of the metering groove to adjust the amount of fluid that  
              may flow through the receiver.

2.     The valve of claim 1 wherein the valve includes one metering groove.

3.     The valve of claim 1 wherein the stem includes the metering groove.

4.     The valve of claim 1 wherein the receiver includes the metering groove.

20    5.     The valve of claim 1 wherein the stem includes a stem axis and the stem is  
          movable in a direction along the stem axis to position the stem relative to the  
          receiver.

6.     The valve of claim 5 wherein the stem is also rotatable about the stem axis to  
          position the stem relative to the receiver.

25    7.     The valve of claim 6 wherein the metering groove is helical and has a groove  
          pitch that is not equivalent to the distance the stem travels in the direction along  
          the stem axis after completing one rotation about the stem axis.

8.     The valve of claim 1 wherein:

        the receiver includes a wall defining a hole,

30             the stem includes a tip that has the metering groove, and

- 5                   the wall and metering groove form the metering passage when the tip is  
                    positioned in the hole, wherein a substantial portion of the fluid that flows  
                    through the receiver flows through the metering passage.
9.       The valve of claim 8 wherein the hole and the tip are cylindrical.
10.      A valve stem positionable relative to a receiver of a valve to adjust the amount of  
10       fluid that may flow through the receiver, the valve stem comprising:  
  
          a tip including a metering groove having a groove axis that extends the length  
          of the metering groove and cross-sectional areas oriented perpendicular to  
          the groove axis that differ according to their location along the groove axis,  
          wherein the metering groove is operable to form a metering passage that  
15       limits the amount of fluid that may flow through the receiver.
11.      The valve stem of claim 10 wherein the tip includes one metering groove.
12.      The valve stem of claim 10 wherein the tip includes a distal end and the metering  
          groove extends away from the distal end.
13.      The valve stem of claim 10 wherein:  
20       the tip includes a distal end,  
  
          the metering groove extends away from the distal end, and  
  
          the cross-sectional areas decrease as the metering groove extends away  
          from the distal end.
14.      The valve stem of claim 10 wherein:  
25       the tip includes a distal end,  
  
          the metering groove extends away from the distal end, and  
  
          the cross-sectional areas decrease at a constant or substantially constant  
          rate as the metering groove extends away from the distal end.
15.      The valve stem of claim 10 wherein the metering groove and groove axis are  
30       helical.

- 5 16. The valve stem of claim 10 wherein the cross-sectional areas of the metering groove are "U" shaped.
17. The valve stem of claim 16 wherein each "U" shaped cross-sectional area has a crest and a root, and the cross-sectional areas differ in the distance between the crest and the root of each "U" shaped cross-sectional area.
- 10 18. The valve stem of claim 10 wherein the cross-sectional areas of the metering groove are "V" shaped.
19. The valve stem of claim 10 further comprising threads having a thread pitch and operable to position the valve stem relative to the receiver, and wherein the metering groove is helical and has a groove pitch that is not equivalent to the thread pitch.
- 15 20. The valve stem of claim 10 wherein the tip is substantially cylindrical.
21. A method for adjusting an amount of fluid flowing through a valve, the method comprising:
- forming a metering passage with a metering groove having a groove axis that
- 20 extends the length of the metering groove and cross-sectional areas oriented perpendicular to the groove axis that differ according to their location along the groove axis; and
- positioning a valve stem relative to a receiver to establish with a
- cross-sectional area of the metering groove a minimum cross-sectional
- 25 area of the metering passage that provides a desired amount of fluid flowing through the valve.
22. The method of claim 21 wherein forming the metering passage includes inserting a tip of the valve stem into the receiver.
23. The method of claim 21 wherein positioning the valve stem relative to the
- 30 receiver includes moving the tip of the valve stem relative to the receiver in a direction along a stem axis.

- 5    24.    The method of claim 23 wherein moving the valve stem relative to the receiver includes rotating the tip of the valve stem about the stem axis.
25.    The method of claim 21 wherein positioning the valve stem relative to the receiver includes establishing the minimum cross-sectional area of the metering passage where the fluid enters the metering passage.
- 10   26.    The method of claim 21 further comprising positioning the valve stem relative to the receiver to establish with a different cross-sectional area of the metering groove a different minimum cross-sectional area of the metering passage.